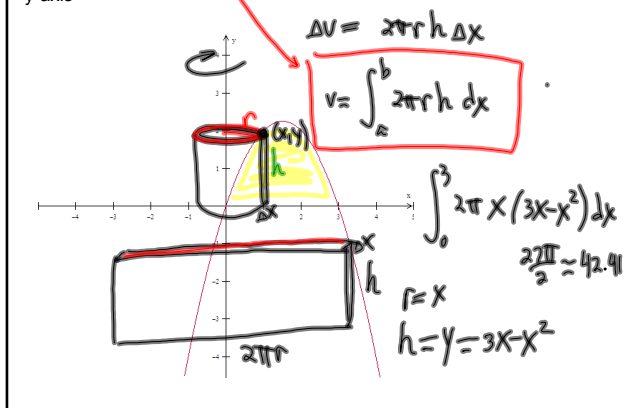


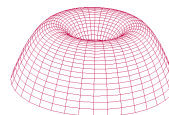
## 7.3b Volumes

## cylindrical shells

Revolve the region bounded by  $y=3x-x^2$  and the x-axis about the y-axis

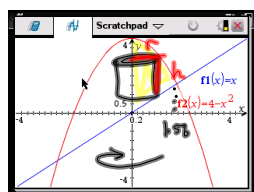


Find the volume using the shell method



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The region bounded by the curves  $y = 4-x^2$ ,  $y=x$  and  $x=0$  is revolved about the y-axis to form a solid. Use shells to find the volume of the solid.



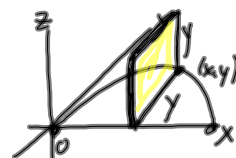
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## Other cross sections

The base of a solid is the region between the x-axis and one arch of the curve  $y=2\sin(x)$ . Each cross section cut perpendicular to the x-axis is a square whose edge runs from the x-axis to the curve.

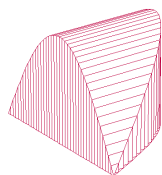


$$V = \int_a^b A(x) dx$$



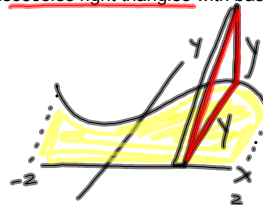
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Find the volume



$$V = 2\pi$$

The base of a solid lies between  $y=2+x\cos(x)$  and the x-axis from  $x=-2$  to  $x=2$ . The cross sections perpendicular to the x-axis are isosceles right triangles with base on the xy plane. Find the volume.



$$\int \frac{1}{2} y^2 dx$$

$$\int_{-2}^2 \frac{1}{2} (2+x\cos(x))^2 dx$$

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